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A S U P P L E M E N T to a former TREATISE
on that Subject.

By PERCIVALL POTT, F.R.S.
SURGEON to ST. BARTHOLOMEW'S HOSPITAL.

L O N D O N :

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A TREATISE ON THE

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THE CIVILIAN

AND TO THE

LONDON

PRINTED BY

WARRIOR

F A R T H E R
R E M A R K S, &c.

IT is now near three years since I first troubled the public with my observations on the disease which makes the subject of the following tract.

The apology which I then made, for what I was perfectly aware might be thought a premature publication, was, that the distemper to which it related was supposed to be incapable of receiving any relief from art; and that they who were afflicted with it were therefore deserted, and left to linger out a most miserable existence; but, that from the benefit which

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I had seen to be derived from a particular, and at the same time a perfectly safe method of treating it, I thought that it demanded the immediate and serious regard of the profession.

Previous to the publication, I had considered the disease with some attention, and had made some experiments on it, which, although not many, were sufficient in number, and had been attended with such a degree of success as to satisfy me, that it was a subject in which mankind was much interested; but as I did not think that any one man's experience, be it what it might, was sufficient to determine a matter of so much importance, I wished that the faculty at large might be made acquainted with what I had seen and done, that they might be induced to make the same experiment, and thereby either contradict or confirm what I had said; if the former should be the result, my proposition

fition would soon meet with the neglect
 which it would deserve; I could only
 console myself with the rectitude of my
 intention, and be sorry for my mistake:
 but if, on the contrary, the attempts of
 others should prove as successful as mine,
 it appeared to me, that the chirurgic art
 would make a great acquisition, as it would
 be thereby furnished with the means of
 relieving one of the most distressing mala-
 dies to which human nature is liable; a
 malady which, when it befalls an adult,
 makes him compleatly miserable, by de-
 priving him of all power of being useful to
 himself or others; a malady which, when
 an infant becomes its victim, renders all
 the care and tears, all the tenderness and
 anxiety of the fondest parent absolutely
 unavailing, and a malady for which it was
 supposed, there was no remedy.

These were my reasons for hazarding my opinion so hastily: the importance of the subject, and the perfect safety of the experiment, were, as I thought, a sufficient excuse for so doing.

My wishes, and my expectations, have been most pleasingly fulfilled. I have received such manifold and repeated testimony of the success of the proposed method, from so large a number of the most eminent practitioners, not only in this town and kingdom, but in many other parts of Europe; that these, added to my own experience, have compleatly satisfied me, and enabled me to say, that in proper cases, and under proper treatment, I have no doubt of its being universal.

In all the time which has passed since the first publication, I have sought and embraced every opportunity of obtaining information, both from the living and
from

from the dead; and I have requested and received the assistance of many friends, whose civilities, and whose information, I take this opportunity of acknowledging.

By these means I have been enabled to correct several errors, and to make some additional observations, which I hope may not only elucidate the original subject, but may serve other equally valuable purposes. Truths built on observation and experience, seldom stand single; they generally lead to others, and become the means of more diffusive knowledge.

THE

THE Disease, of which I am to speak, is a disease of the Spine, producing an alteration in its natural figure, and not unfrequently attended with a partial, or a total loss of the power of using, or even of moving, the lower limbs.

From this last circumstance, (the loss of the use the limbs) it has in general been called a Palsy, and treated as a paralytick affection; to which it is in almost every respect perfectly unlike.

The occasion of the mistake is palpable; the patient is deprived of the use of his legs, and has a deformed incurvation of the Spine; the incurvation is supposed to be caused by a dislocation of the vertibræ; the displaced bones are thought to make an unnatural pressure on the spinal marrow, and a pressure on that being very likely to produce

produce a paralyfis of some kind, the loss of the use of the legs is in this case determined to be such: the truth is, that there is no dislocation, no unnatural pressure made on the spinal marrow, nor are the limbs by any means paralytick, as will appear to whoever will examine the two complaints with any degree of attention.

In the true paralyfis, from whatever cause, the muscles of the affected limb are soft, flabby, unresisting, and incapable of being put into even a tonic state; the limb itself may be placed in almost any position or posture; if it be lifted up, and then let go, it falls down, and it is not in the power of the patient to prevent, or even to retard its fall: the joints are perfectly and easily moveable in any direction; if the affection be of the lower limbs, neither hips, knees, nor ancles, have any degree of rigidity or stiffness, but permit the limb to be turned or twisted in almost any manner.

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In the present case, the muscles are indeed extenuated, and lessened in size; but they are rigid, and always at least in a tonic state, by which the knees and ancles acquire a stiffness not very easy to overcome; by means of this stiffness, mixed with a kind of spasm, the legs of the patient are either constantly kept stretched out strait, in which case considerable force is required to bend the knees, or they are by the action of the stronger muscles drawn across each other, in such manner as to require as much to separate them: when the leg is in a strait position, the extensor muscles act so powerfully as to require a considerable degree of force to bend the joints of the knees; and when they have been bent, the legs are immediately and strongly drawn up, with the heels toward the buttocks: by the rigidity of the ancle joints, joined to the spasmodic action of the gastrocnimii muscles, the patient's toes are pointed downward in such manner as to render

render it impossible for him to put his foot flat to the ground; which makes one of the decisive characteristics of the distemper.

These are strong marks of the distinction which ought to be made between the two diseases; and fully sufficient to shew the impropriety of confounding them with each other.

The majority of those who labour under this disease are infants or young children: Adults are by no means exempt from it, but I have never seen it at an age beyond forty.

When it attacks a child who is old enough to have walked properly, its aukward and imperfect manner of using its legs, is the circumstance which first excites attention, and the incapacity of using them at all, which very soon follows, fixes that attention, and alarms the friends.

The account most frequently given is, that for some time previous to the incapacity, the child had been observed to be languid, listless, and very soon tired ; that he was unwilling to move much, or briskly ; that he had been observed frequently to trip and stumble, although no impediment lay in his way ; that when he moved hastily or unguardedly, his legs would cross each other involuntarily, by which he was often and suddenly thrown down ; that if he endeavoured to stand still, and upright, unsupported by another person, his knees would totter and bend under him ; that he could not with any degree of precision or certainty, steadily direct either of his feet to any particular point, but that in attempting so to do, they would be suddenly, and involuntarily brought across each other ; that soon after this, he complained of frequent pains and twitchings in his thighs, particularly when
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in bed, and of an uneasy sensation at the pit of his stomach; that when he sat on a chair, or a stool, his legs were almost always found across each other, and drawn up under the seat; and that in a little time after these particulars had been observed, he totally lost the power of walking.

These are the general circumstances which are found, at least in some degree, and that pretty uniformly in most infants and children, but there are others which are different in different subjects.

If the incurvation be of the neck, and to a considerable degree, by affecting several vertebræ, the child finds it inconvenient and painful to support its own head, and is always desirous of laying it on a table or pillow, or any thing to take off the weight. If the affection be of the dorsal vertebræ, the general marks of a distempered habit, such as loss of appetite, hard

dry cough, laborious respiration, quick pulse, and disposition to hectic, appear pretty early, and in such a manner as to demand attention: and as in this state of the case there is always, from the connection between the ribs sternum and spine a great degree of crookedness of the trunk, these complaints are by every body set to the account of the deformity merely. In an adult, the attack and the progress of the disease are much the same, but there are some few circumstances which may be learned from a patient of such age, which either do not make an impression on a child, or do not happen to it.

An adult, in a case where no violence hath been committed, or received, will tell you, that his first intimation was a sense of weakness in his back bone, accompanied with what he will call a heavy dull kind of pain, attended with such a lassitude as rendered a small degree of exercise

cise fatiguing : that this was soon followed by an unusual sense of coldness in his thighs, not accountable for from the weather, and a palpable diminution of their sensibility. That in a little time more, his limbs were frequently convulsed by involuntary twitchings, particularly troublesome in the night : that soon after this, he not only became incapable of walking, but that his power either of retaining or discharging his urine and fæces was considerably impaired, and his penis became incapable of erection.

The adult also finds all the offices of his digestive, and respiratory organs much affected, and complains constantly of pain and tightness at his stomach.

In infants, the curve is seldom noticed till it has got to such size and state, as to demand attention from the deformity : previous to this, all the marks of dis-
temper

temper which appear in the child, pass for the effects of general weakness, and are treated as such ; differently by different people, and under different circumstances, but never with any permanent good effect ; some of the adventitious symptoms if I may so call them, are, in some degree relieved, but the principal remain in full force, or what is much more frequent, go on increasing.

In an adult it passes for rheumatism, or gravel, or a strain, and the defect in the limbs is the first thing that occasions an enquiry into the state of the back bone.

When a curvature is perceived in an infant, it is always supposed to have received a hurt by a blow, or fall, and an adult has always recourse to some exertion in pulling, drawing, lifting, or carrying, by which the spine is thought to have been deranged,

deranged, or injured; but which supposition is seldom, if ever true in either case.

The true cause of the disease, is a morbid state of the spine, and of some of the parts connected with it; which distempered state of parts will upon careful enquiry, be always found to have preceded the deformity some length of time; in infants this is the sole cause, and external violence has nothing to do with it. In the adult, I will not assert that external mischief is always and totally out of the question, but I will venture to affirm what is equal, as far as regards the true nature of the case, which is, that although accident and violence may in some few instances be allowed to have contributed to its more immediate appearance, yet the part in which it shows itself, must have been previously in a morbid state, and thereby predisposed for the production of it. I do not by this mean to say that a violent exertion can not injure

injure the spine, nor produce a paralytick complaint, that would be to say more than I know ; but I will venture to assert, that no degree of violence whatever is capable of producing such an appearance as I am now speaking of, unless the bodies of the vertebræ were by previous distemper disposed to give way ; and that no supposable dislocation, caused by mere violence done to the bones of the back, which bones were before the receipt of the injury in a sound state, can possibly be attended with the peculiar symptoms of a curved spine. In which distinction, according to my judgment, consists the very essence of the disease. Violence may easily be supposed to bring the two vertebræ nearer to each other than they ought to be, and by crushing an intermediate one to produce a curvature ; but then the body of the vertebræ so crushed, must have been in a distempered state previous to such violence : great violence may also suddenly and immediately displace a perfectly

fectly sound vertebræ from its proper and natural situation, with regard to those annexed to it; but the necessary consequences of these two kinds of injury must be so very different, that they never can be confounded together, or mistaken for each other, even by the most inattentive observer.

The true curvature is invariably uniform in being from within outwards; but it varies in situation, in extent, and in degree; it affects the neck, the back, or the loins; it comprehends one vertebra only, or two, or more; and as few or more are affected, or, as these are more or less morbid, and consequently give way more or less, the curve must be different; but whatever variety these circumstances may admit, the lower limbs alone,* in general, feel the effect.

* Since I began to put these papers together, I have seen two cases, in one of which the arms only were affected, in the other both legs and arms.

Mr.

effect. Some are very soon after the curvature, rendered totally and absolutely incapable, not only of walking, but of using their legs in any manner ; others can make shift to move about with the help of crutches, or by grasping their thighs just above the knees with both hands ; some can sit in an armed chair without much trouble or fatigue, others can not sit up with any help ; some retain such a degree of power of using their legs, as to be able to shift their posture when in bed ; others have no such power, and are obliged to be moved upon all occasions.

Weak and delicate children are the most frequent subjects of this distemper ; and
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Mr. E. Ford, of Golden Square, has favoured me with the examination and case of a lad, who lost the use of both legs, and both arms, from a curvature which Mr. Ford cured by means of the caustics.—— Mr. Parke, of Liverpool, has also obliged me with an account of two persons, both under his care, both with useless arms and legs, and both cured by the same means.

when in these, it seizes on the dorsal vertebræ, great deformity of the trunk both before, and behind, is the almost inevitable and necessary consequence; this will be different in different persons, but let the difference in this be what it may, it is an adjunct circumstance, and upon due enquiry it will always be found that the curvature from within outward, preceded the other deformity, and was, at one time, the only one to be seen.

Before the alteration of figure in the back bone has been discovered, all the attention is paid to the limbs, in which the whole disorder is supposed to reside; and all the applications for relief are made to them: frictions, liniments, embrocations, blisters, &c. to which is generally added cold-bathing and electricity; when the curvature has been noticed, recourse is immediately had to back-boards, collars, steel boddice, fwings, screw-chairs, and

other pieces of machinery, but all to no purpose; the patient becomes daily more and more helpless and unhealthy, languishes for more or less time, and at last dies either in an emaciated state from an hectic, or by a drain from an abscess formed within the body.

That this is the case frequent, and melancholy experience evinces, but why it is so, is perhaps not generally so well understood, or attended to as it ought to be.

The primary and sole cause of all the mischief, is a distempered state of the parts composing or in immediate connection with the spine, tending to, and most frequently ending in a caries of the body, or bodies, of one or more of the vertebræ: from this proceed all the ills whether general, or local, apparent, or concealed; this causes the ill health of the patient, and, in time, the curvature. The helpless state
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of the limbs, is only one consequence of several proceeding from the same cause; but though this effect is a very frequent one, and always affects the limbs in nearly the same manner; yet the disease not having its origin in them, no application made to them only can ever be of any possible use.

The same failure of success attends the use of the different pieces of machinery, and for reasons which are equally obvious.

They are all, from the most simple to the most complex, but particularly the swing and the screw, calculated to obviate and remove what does not exist. They are founded upon the supposition of an actual *dislocation* which never is the case, and therefore they always have been and ever must be unsuccessful.

To

To understand this in the clearest and most convincing manner, we need only reflect on the nature of the disease, its seat, and the state in which the parts concerned must necessarily be.

The bones are either already carious, or tending to become so; the parts connected with them are diseased, and not infrequently ulcerated; there is no displacement of the vertebræ with regard to each other, and the spine bends forward only because the rotten bone, or bones intervening between the sound ones give way, being unable in such state to bear the weight of the parts above. The most superficial reflection on this must point out to every one, why attempts of this kind can do no good, and a little more attention to the subject will shew why they may be productive of real, and great mischief. The bones are supposed to be sound, but displaced; these machines are
designed

designed to bring them back to their former situation, and thereby to restore to the spine its proper rectitude ; if therefore they have any power, that power must be exercised on the parts in connection with the curve ; which parts, when the disease is at all advanced, are incapable of bearing such a degree of violence without being much hurt thereby : this, if it were merely theoretical, being a conclusion drawn from the obvious and demonstrable state of the distempered parts, could not be deemed unreasonable ; but, unfortunately for the afflicted, it is confirmed by practice. They who have had patience and fortitude to bear the use of them to such a degree as to affect the parts concerned, have always found increase of pain and fever, and an exasperation of all their bad symptoms, and I have known more than one instance in which the attempt has proved *fatal*.

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The use of some or other of these pieces of machinery is so general, and the vulgar prejudice in their favour so great, that notwithstanding I have been long convinced of their perfect inutility, yet if I had no other objection to them, I would not attempt to rob the afflicted of what they seem to derive such comfortable expectation from; but as I am satisfied of their mischievous effects, not only in the case of the present subject, but in many others; I can not help bearing my testimony against the indiscriminate and very improper use which is daily made of them.

They are used with design to prevent growing children from becoming crooked or misshapen, and this they are supposed to do by supporting the back-bone, and by forcing the shoulders unnaturally backward; the former they can not do, and in all cases where the spine is weak, and thereby inclined to deviate from a right figure,

figure, the latter action of these instruments must contribute to rather than prevent such deviation; as will appear to whoever will with any attention examine the matter: if, instead of adding to the embarrassments of childrens dress by such iron restraints, parents would throw off all of every kind, and thereby give nature an opportunity of exerting her own powers; and if in all cases of manifest debility recourse was had to friction, bark, and cold bathing, with a due attention to air, diet, exercise, and rest, the children of the opulent would, perhaps, stand a chance of being as stout, as strait, and as well shapen as those of the laborious poor.

When a child appears to be what the common people call naturally weakly, whatever complaints it may have are supposed to be caused by its weak state, and it is generally believed that time and common care will remove them; but when a curvature has made its appearance, all these

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marks

marks of ill health, such as laborious respiration, hard cough, quick pulse, hectic heat and flushing, pain and tightness of the stomach, &c. are more attentively regarded, and set to the account of the deformity consequent to the curve, more especially if the curvature be of the dorsal vertebræ, in which case the deformity is always greatest: but whoever will carefully attend to all the circumstances of this disorder, will be convinced, that most, if not all the complaints of children, labouring under this infirmity, precede the curvature, and that a morbid state of the spine, and of the parts connected with it, is the original and primary cause of both. *

I have in the former edition informed the reader, that my particular attention to this disease

* “ When I published the first edition of this tract,
 “ I was not so aware of this truth, as a more enlarged
 “ experience in, and a more careful attention to the
 “ disorder since has made me.

“ I am very glad to embrace this opportunity of ac-
 “ knowledging, and of correcting the mistake, and the
 “ more

disease was first excited by an instance of its being cured by a seemingly accidental abscess; that this first gave me reason to suspect, that we had mistaken an effect for a cause, and, that upon mature deliberation upon the matter, I was still more inclined to think so for the following reasons.

1. " That I did not remember ever to
" have seen this useless state of the limbs
" from a mere malformation of the spine,
" however crooked such malformation
" might have made it.

2. " That none of these deviations from
" right shape, which growing girls are so
" liable, to however great the deformity
" might be, was ever attended with this
" effect.

3. " That the kind of deformity, which
" was attended with this affection of the

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" limbs,

" more so as I am convinced that an inference of the
" greatest importance may be drawn from it. I am
" satisfied that this malady may, in many instances,
" by early and proper attention, be prevented from pro-
" ducing its otherwise inevitable consequences, tempo-
" rary lameness, and permanent deformity."

“limbs, although it was different as to its
 “degree, and its extent in different people,
 “yet it was uniform in one circumstance,
 “which was, that the curvature always
 “was from within outwards.

4. “That since I had been particularly
 “attentive to the disorder, I thought that I
 “had observed, that neither the extent,
 “nor degree of the curve, had in general
 “produced any material difference in the
 “symptoms, but that the smallest was,
 “when perfectly formed, attended with
 “the same consequences as the largest.”

5. That although it had sometimes hap-
 pened, that a blow, or a strain, had pre-
 ceded the appearance of the curve, yet it
 much more frequently happened, that no
 such cause was assignable.

6. “That I had observed exactly the
 “same symptoms in infants, and in young
 “children, who had neither exerted them-
 “selves, nor were supposed to have received
 “any

“ any injury from others ; and that the
 “ case was still the same in those adults,
 “ who had no such cause to look to.”

7. That although it might be expected, that a dislocation of any of the vertebræ, would be attended with symptoms of the paralytic kind, yet they would be very unlike to those which affected the limbs in the present case.

The suspicions which these circumstances had excited in my mind, were confirmed *
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* In the first edition I had described the bones on which the disease had seized, as being enlarged and spread ; upon repeated inquiry and examination, I am convinced that they are not.

The bodies of the vertebræ concerned are often affected, while the ligaments bear but little mark of distemper ; but whether the ligaments be affected, or not, the bodies of the vertebræ are always diseased, which disease does not so properly *enlarge* as *erode* : the state also of the intervertebral cartilages, I find to be subject to great variety, they being sometimes totally destroyed, while the caries is small in degree, sometimes apparently but little injured, where the caries has done considerable mischief, and sometimes totally destroyed and annihilated.

by what I had a few opportunities of observing, in the dead bodies of some who had died afflicted with this disorder, and altogether satisfied me, that there must be something predisposing in the parts concerned; and that when we attribute the useless state of the limbs merely to the curvature, we mistake, as I have just said, an effect for a cause.

At the same time I gave an account of a conversation, which passed between me and the late Dr. Cameron, of Worcester, who told me, that having remarked in Hippocrates, an account of a paralysis of the lower limbs, cured by an abscess in the back he had in a case of useless limbs attended, with a curvature of the spine, endeavoured to imitate this act of nature by exciting a purulent discharge, and that it had proved very beneficial, which was confirmed to me by Mr. Jeffries, of Worcester, who

who had made the same experiment with the same success. *

From the time of my receiving this first information to the present, I have sought every opportunity of making the experiment; St. Bartholomew's Hospital has seldom been without cases of this kind, and it is with infinite pleasure and satisfaction, that I find myself enabled to say, that in all cases where the complaint has been so circumstanced as to admit of even probable expectation, the attempt has been successful.

If the cure of this most dreadful distemper had depended upon an application to the constitution in general, it might have required a variety of medicines, the administration of which must have demanded
judg-

* In this place of the first edition, I gave a short account of the first two or three cases which occurred to me; in this I omit them as needless.

The number of experiments which have been made by many of the most eminent practitioners, at home and abroad, have sufficiently established the fact, and render the relation of particular cases unnecessary.

judgment in adapting them to particular persons and constitutions; and it must also, in the nature of things, have happened that many individuals could not have been benefited at all. But fortunately for the afflicted, the means of relief are simple, uniform, and safely applicable to every individual, under almost every possible circumstance, not attended by the smallest degree of hazard, and capable of being executed by any body who has the least portion of chirurgic knowledge: it consists merely in procuring a large discharge of matter, from underneath the *membrana adiposa* on each side of the distempered bones forming the curvature, and in maintaining such discharge until the patient shall have recovered his health and limbs. They who are little conversant with matters of this sort, will suppose the means very inadequate to the proposed end; but they who have been experimentally acquainted with the very wonderful effects of purulent drains, made from the immediate neighbourhood of diseases,

eases, will not be so much surpris'd at this particular one; and will immediately see how such kind of discharge, made, and continued from the distempered part, checks the further progress of the caries, give nature an opportunity of exerting her own powers, of throwing off the diseased parts, and of producing by incarnation an union of the bones (now rendered sound) and thereby establishing a cure.

However, be all this as it may, the fact is undoubted, and the number of witnesses, as well as patients producible in confirmation of it is so considerable, that it is needless to say any thing more on that head.

It is a matter of very little importance towards the cure, by what means the discharge be procured, provided it be large, that it come from a sufficient depth, and,

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that it be continued for a sufficient length of time.*

I have tried the different means of setons, issues by incision, and issues by caustic, and have found the last in general preferable, being least painful, most cleanly, most easily manageable, and capable of being longest continued.

The caustics should be applied on each side of the curvature, in such a manner as to leave the portion of skin covering the spinal processes of the protruding bones, entire and unhurt, and so large, that the sores upon the separation of the eschars, may easily hold each three or four peas in the case of the smallest curvature; but in large curves, at least as many more.

These issues should not only be kept open, but the discharge from them should be

* When I say this, I mean to signify that it is absolutely without limitation, and must depend on their beneficial effect.

be maintained by means of orange peas, cantharides in fine powder, ærugo æris, or any such application as may best serve the intended purpose, which should be that of a large, and long continued drain.

Whatever length of time it may take to obtain a compleat cure, by restoring the health as well as the limbs, the issues must be continued at least as long; and in my opinion, a considerable time longer, especially in the persons of infants and growing children; the necessity of which will appear more strongly, when it shall be considered that infants and young children of strumous habits, are the subjects who are most liable to this distemper, and that in all the time previous to menstruation in one sex, and puberty in the other, they are in general more served by artificial drains than any other persons whatever.

This, and this only, does or can alleviate the misery attending this distemper, and in proper time effect a cure.

By means of these discharges, the eroding caries is first checked, and then stopped; in consequence of which an incarnation takes place, and the cartilages between the bodies of the vertebræ having been previously destroyed, the bones become united with each other and form a kind of anchylosis.

The time necessary for the accomplishment of this, must, in the nature of things, be considerable in all cases, but very different according to different circumstances.

No degree of benefit or relief, nor any the smallest tendency towards a cure is to be expected, until the caries be stopped, and the rotten bones have begun to incarn; the larger the quantity of bones concerned,

concerned, and the greater degree of waste and havock committed by the caries, the greater must be the length of time required for the correction of it, and for restoring to a sound state so large a quantity of distempered parts.—and vice versa.*

In the progress toward a cure, the same gradation or succession of circumstances may be observed, as was found to attend the formation of the disease, with this difference, that they which attend the latter, are much more rapid than those which accompany the former.

After the discharge has been made some time, very uncertain what the patient

* Nothing can be more uncertain than the time required for the cure of this distemper. I have seen it perfected in two or three months, and I have known it require two years; two thirds of which time passed before there was any visible amendment.

tient is found to be better in all general respects, and if of age to distinguish, will acknowledge that he feels himself to be in better health; he begins to recover his appetite, gets refreshing sleep, and has a more quiet and less hectic kind of pulse, but the relief which he feels above all others, is from having got rid of that distressing sensation of tightness about the stomach, in a little time more a degree of warmth, and a sensibility is felt in the thighs, which they had been strangers to for some time, and generally much about the same time, the power of retaining and discharging the urine and fœces begins to be in some degree exerted.

The first return of the power of motion in the limbs is rather disagreeable, the motions being involuntary and of the spasmodic kind, principally in the night; and generally attended with a sense of pain in all the muscles concerned.

At

At this point of amendment, if it may be so called, it is no uncommon thing, especially in bad cases, for the patient to stand sometime without making any farther progress; this in adults occasions impatience, and in parents despair; but in the milder kind of case, the power of voluntary motion generally soon follows the involuntary.

The knees and ancles by degrees lose their stiffness, and the relaxation of the latter enables the patient to set his feet flat upon the ground, the certain mark that the power of walking will soon follow; but those joints having lost their rigidity become exceedingly weak, and are not for some time capable of serving the purpose of progression.

The first voluntary motions are weak, not constantly performable, nor even every day, and liable to great variation, from a
number

number of accidental circumstances, both external and internal.

The first attempts to walk are feeble, irregular, and unsteady, and bear every mark of nervous, and muscular debility; the patient stands in need of much help, and his steps, with the best support, will be, as I have just said, irregular and unsteady; but when they have arrived at this, I have never seen an instance in which they did not soon attain the full power of walking.

When the patient can just walk, either with crutches, or between two supporters, he generally finds much trouble and inconvenience, in not being able to resist, or to regulate, the more powerful action of the stronger muscles of the thigh over the weaker, by which his legs are frequently brought involuntarily across each other, and he is suddenly thrown down.

Adults

Adults find assistance in crutches, by laying hold of chairs, tables, &c. but the best and safest assistance for a child, is what is called a go-cart, of such height as to reach under the arms, and so made as to enclose the whole body: this takes all inconvenient weight off from the legs, and at the same time enables the child to move them as much as it may please.

Time and patience are very requisite; but they do in this case, as in many others, accomplish our wishes at last.

The deformity remaining after recovery is subject to great uncertainty, and considerable variety, as it depends on the degree of caries, and the number of bones affected: in general, it may be said, that where one vertebræ only is affected, and the patient young, the curve will in length of time almost totally disappear; but where two or three are affected, this cannot be ex-

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pected ; the thing aimed at is the consolidation and union of the bones, which had been carious, and are now become found : this is the *sine quâ non* of the cure, and this must in such cases render the curvature, and consequently the deformity, permanent : the issues will restore the use of the limbs, but not the lost figure of the spine.

SINCE

SINCE this method of treating the distemper has been made known, the disease itself has been more adverted to, and applications for relief have been more frequent than they were while it was regarded as incurable. The number received into St. Bartholomew's Hospital, has been considerable, and, as it may be supposed, some in a state to admit of cure, others not. While the thing was new, and before a number of cures sufficient to establish the fact had been wrought, it was doubted by most, and positively denied by some; but since a variety of successes has put the matter beyond all doubt, with regard to the restoration of the use of the limbs, it has been said, that as the disease is manifestly a disease of the bones, it is to be apprehended, that the expectation of relief may in some cases fail, and that in others it may not prove permanent; that the same kind of constitution remaining, a return of

the malady may be feared; and, in short, that a much greater degree of uncertainty may occur, than might be expected from the account which I have given.

To the first I answer, that in cases where the caries is very extensive, and the constitution has been thereby so injured as to produce a degree of mischief tending to the destruction of the patient, no good is to be expected; the disease has been too long neglected, and is become thereby an overmatch for the remedy. But how does this differ from what may be said, with the same truth, of every disease, and of every remedy. To the second, third, and fourth remark, all I can say is, that in the space of three years, during which I have had many opportunities of making the experiment, I have met with but one single instance in which it has failed, where, from the state of the disease, and of the patient, there was any reasonable foundation

foundation for hopes; that all those who have submitted to keep the issues open long enough, have been so restored to health, and to the free use of their limbs, as to be perfectly capable, not only of exercise, but of hard labour, and that I have never yet, among those so treated, met with one on whom the disease has returned.

On the other hand, the nature of the original distemper in the habit, its effects both local and general, the gradual, slow manner in which alone a cure is obtainable, and the particular circumstance on which such cure entirely depends, I mean the removal of the caries, and the union of the bones with each other, all very strongly point out the propriety of continuing that discharge for a sufficient length of time, from which, and from which only, such benefit has been derived.

AT the beginning of the preceding tract I have said, that when I first began to consider the distemper with that degree of attention which it seemed to deserve, I was inclined to suspect that we had hitherto regarded it too superficially; that we had been satisfied with observing its external appearance merely, without enquiring into its real nature; that we had thereby been led to mistake an effect for a cause, and that there must certainly be either in the constitution of the patient, or in the state of the parts concerned, something which tended to produce this very dreadful malady.

I am satisfied I was right in my conjecture, and am convinced, from every circumstance, general and particular, in the living, and from every appearance in the dead, that the complaint arises from what
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is commonly called a strumous, or scrophulous indisposition, affecting the parts composing the spine, or those in its immediate vicinity.

This morbid affection shews itself in a variety of forms, but, although its appearances be various, yet they are always such as determine the true nature of the distemper.

Sometimes it appears in a thickened state of the ligaments, connecting the vertebræ together, without any apparent affection of the bones.

Sometimes in the form of a distempered state of the intervertebral substances, called cartilages.

Sometimes in that of diseased glands, either in a merely indurated and enlarged state, or what is more frequent, in that of a partial suppuration.

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Sometimes it is found in the form of bags or cysts, containing a quantity of stuff of a very unequal consistence, partly purulent, partly sanious, and partly a curd-like kind of substance; and not unfrequently entirely of the last.

Sometimes under these bags, or cysts, even while they remain whole, the subjacent bones are found to be distempered, that is, deprived of periostium, and tending to become carious.

Sometimes these collections erode the containing membranes, and make their way downward by the side of the psoas muscle, toward the groin, or by the side of the pelvis behind the great trochanter, or in some cases to the outside of the upper part of the thigh.

Sometimes each of the distempered states of these parts is accompanied by a greater or less degree of deformity, and crookedness
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of the spine without any apparent disease of the bones composing it : sometimes the deformity is attended with an erosion, or caries of the body or bodies of some of the vertebræ ; and sometimes the same bones are found to be carious, without any crookedness or alteration of figure.

These different affections of the spine, and of the parts in its immediate neighbourhood, are productive of many disorders, general and local, affecting the whole frame and habit of the patient, as well as particular parts ; and, among the rest, of that curvature which is the subject of this enquiry ; and it may not be amiss to remark, that strumous tubercles in the lungs, and a distempered state of some of the abdominal viscera, often make a part of them.

From an attentive examination of these morbid appearances, and of their effects in different subjects, and under different

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circumstances, the following observations, tending not only to illustrate and explaine the true nature of the disease in question, but also to throw light on others of equal importance, may I think be made.

1. That the disease which produces these effects on the spine, and the parts in its vicinity, is what is in general called the scrophula; that is, that same kind of indisposition as occasions the thick upper lip, the tedious obstinate ophthalmy, the indurated glands under the chin, and in the neck, the obstructed mesentary, the hard dry cough, the glairy swellings of the wrist and ancles, the thickened ligaments of the joints, the enlargement, and caries of the bones, &c. &c. &c.

2. That this disease, by falling on the spine, and the parts connected with it, is the cause of a great variety of complaints, both general and local.

3. That

3. That when these complaints are not attended with an alteration of the figure of the back bone, neither the real seat, nor true nature of such distemper are pointed out by the general symptoms, and consequently, that they frequently are unknown, at least while the patient lives.

4. That when by means of this distemper an alteration is produced in the figure of the back bone, that alteration is different in different subjects, and according to different circumstances.

5. That when the ligaments and cartilages of the spine become the seat of the disorder, without any affection of the vertebræ, it sometimes happens that the whole spine, from the lowest vertebra of the neck downwards, gives way laterally, forming sometimes one great curve to one side, and sometimes a more irregular figure, producing general crookedness and defor-

mity of the whole trunk of the body, attended with many marks of ill health.

6. That these complaints, which are by almost every body supposed to be the effect of the deformity merely, are really occasioned by that distempered state of the parts within the thorax, which is at the same time the cause both of the deformity and of the want of health.

7. That the attack is sometimes on the bodies of some of the vertebræ; and that when this is the case, ulceration or erosion of the bone, is the consequence, and not enlargement.

8. That when this erosion or caries seizes the body or bodies of one or more of the vertebræ, it sometimes happens that the particular kind of curvature which makes the subject of these sheets is the consequence.

9. That

9. That this curvature, which is always from within outward, is caused by the erosion or destruction of part of the body or bodies of one or more of the vertebræ; by which means that immediately above the distemper, and that immediately below it, are brought nearer to each other than they should be, the body of the patient bends forward, the spine is curved from within outward, and the tuberosity appears behind, occasioned by the protrusion of the spinal processes of the distempered vertebræ. See plate 1, 2, and 3.

10. That according to the degree of carious erosion, and according to the number of vertebræ affected, the curve must be less or greater.

11. That when the attack is made upon the dorsal vertebræ, the sternum and ribs, for want of proper support, necessarily give way,

way, and other deformity, additional to the curve is thereby produced.

12. That this kind of caries is always confined to the bodies of the vertebræ, seldom or never affecting the articular processes. *

13. That without this erosive destruction of the bodies of the vertebræ, there can be no curvature of the kind which I am speaking of; or, in other words, that erosion is the *sine quâ non* of this disease; that although there can be no true curve without caries, yet there is, and that not infrequently, caries without curve. See plate 5.

14. That the caries with curvature and useless limbs, is most frequently of the cervical

* I have seen two cases in which the bodies of the vertebræ were totally separated from all connection with the other parts, leaving the membrane, which included the spinal marrow, perfectly bare. See plate 4.

cervical or dorsal vertebræ ; the caries without curve, of the lumbal, though this is by no means constant or necessary.

15. That in the case of carious spine, without curvature, it most frequently happens, that internal abscesses, and collections of matter are formed, which matter makes its way outward, and appears in the hip, groin, or thigh ; or, being detained within the body, destroys the patient : the real and immediate cause of whose death is seldom known, or even rightly guessed at, unless the dead body be examined.

16. That what are commonly called lumbal and psoas abscesses, are not infrequently produced in this manner, and therefore when we use these terms, we should be understood to mean only a description of the course which such matter has pursued in its way outward, or the place where it makes its appearance externally,

nally, the terms really meaning nothing more, nor conveying any precise idea of the nature, seat, or origin of a distemper subject to great variety, and from which variety its very different symptoms and events, in different subjects, can alone be accounted for.

17. That contrary to the general opinion, a caries of the spine is more frequently a cause than an effect of these abscesses.

18. That the true curvature of the spine, from within outward, of which the paralytic, or useless state of the lower limbs, is a too frequent consequence, is itself but *one* effect of a distempered spine; such case being always attended with a number of complaints which arise from the same cause: the generally received opinion, therefore, that all the attending symptoms are derived from the curvature, considered abstractedly, is by no means founded in truth,

truth, and may be productive of very erroneous conduct.

19. That in the case of true curvature, attended with useless limbs, there never is a *dislocation*, properly to be so called; but that the alteration in the figure of the back bone, is caused solely by the erosion and destruction of a part of one or more of the corpora vertebrarum; and, that as there can be no true curvature without caries, it must be demonstrably clear, that there must have been a distempered state of parts previous to such erosion; from all which it follows, that this distemper, call it by what name you please, ought to be regarded as the original cause of the whole, that is, of the caries, of the curvature, and all the attendant mischiefs, be they what they may, general or particular: a consideration, as it appears to me, of infinite importance to all such infants and young children, as shew either from their general complaints,

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or from their shape, a tendency to this kind of evil; and whose parents and friends generally content themselves with a swing, or piece of iron machinery, and look no farther.

20. That whoever will consider the real state of the parts when a caries has taken place, and the parts surrounding it are in a state of ulceration, must see why none of the attempts, by means of swings, screws, &c. can possibly do any good, but, on the contrary, if they act so as to produce any effect at all, it must be a bad one.

21. That the discharge, by means of the issues, produces in due time (more or less under different circumstances) a cessation of the erosion of the bones; that this is followed by an incarnation, by means of which the bodies of the vertebræ which had been the seat of the disease, coalesce, and unite with each other, forming a kind of ankylosis.

22. That

22. That the different degrees and extent of the caries, in different subjects, must render all attempts to cure uncertain, both as to the time required, and as to the ultimate event: the least and smallest degree will (every thing else being equal) be soonest relieved and cured; the larger and more extensive will require more time, and where the rottenness is to a great degree, and all the surrounding parts in a state of distempered ulceration, it must foil all attempts, and destroy the patient.

23. That when two or more vertebræ are affected, forming a large curve, however perfect the success may be with regard to the restoration of health and limbs, yet the curvature will and must remain, in consequence of the union of the bones with each other.

24. That the useless state of the limbs is by no means a consequence of the altered figure of the spine, or of the disposition of

the bones with regard to each other, but merely of the caries: of this truth there needs no other proof, than what may be drawn from the cure of a large and extensive curvature, in which three or more vertebrae were concerned: in this the deformity always remains unaltered and unalterable, notwithstanding the patient recovers both health and limbs.

Upon the whole, after due consideration of what has been said concerning the nature of the complaint, its producing cause, and the method by which it is capable of being cured, I would ask, whether the diseased state of the spine, and of the parts connected with it, (which, if not prevented, must produce some of its very dreadful effects,) may not, by a timely use of proper means, be prevented?

A morbid state of parts previous to deformity, caries, or curve, must be allowed: every complaint of the living, and every appearance

appearance in the dead, prove it beyond contradiction or doubt. All the general complaints of persons afflicted with this disorder will always, upon careful enquiry, be found to have preceded any degree of deformity, to have encreased as the curve became apparent, and to have decreased as the means used for relief took place: the pain and tightness about the stomach, the indigestion, the want of appetite, the disturbed sleep, &c. &c. gradually disappear, and the marks of returning health become observable before the limbs recover the smallest degree of their power of moving.

On the other hand, it is as true, that when from extent, or degree, or inveteracy of the caries, the issues are found to be unequal to the wished-for effect, the general complaints receive no amendment, but encrease until the patient sinks under them.

If

If all this be true, which that it is, the manifold and repeated experience of many, as well as myself, can amply testify; and if it be found that the issues are capable of affecting a perfect curve, even after a caries has taken place, and that to a considerable degree, which is also true to demonstration, is it not reasonable to conclude, that the same means made use of in due time might prove preventive.

If this was a matter of mere speculation, or opinion, I would be very cautious how I spake on the subject; but it is really a matter of experiment; and as far as I have had it in my power to put it to that test, it has succeeded, by the restoration of lost health, and the prevention of a deformity which was advancing rapidly.

It may, perhaps, be said, that if no such means had been used, the same space of time might have produced the same effect: to
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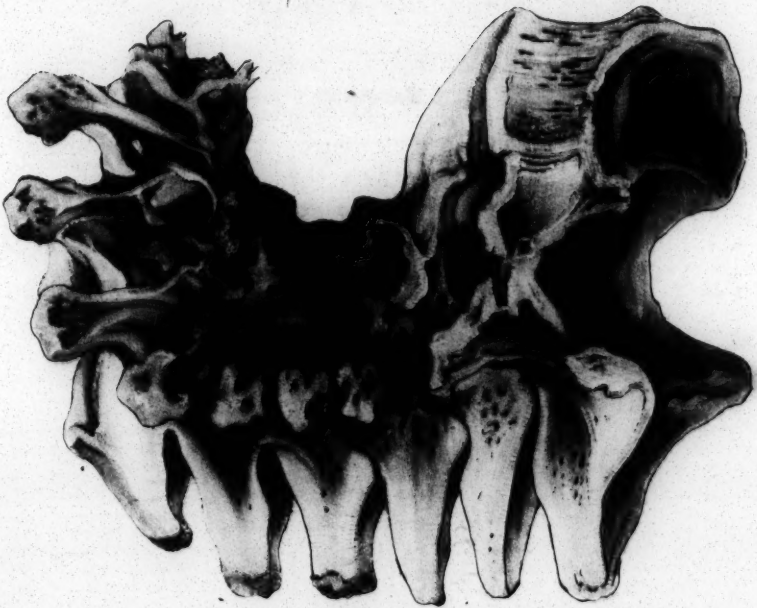
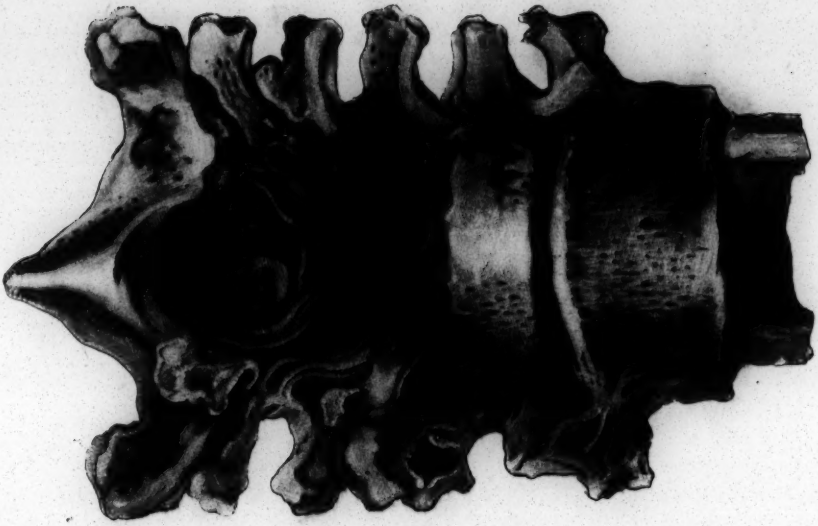
this it is impossible to make an answer: I shall, therefore, content myself with having given my opinion, with the circumstances and reasons on which it is founded.

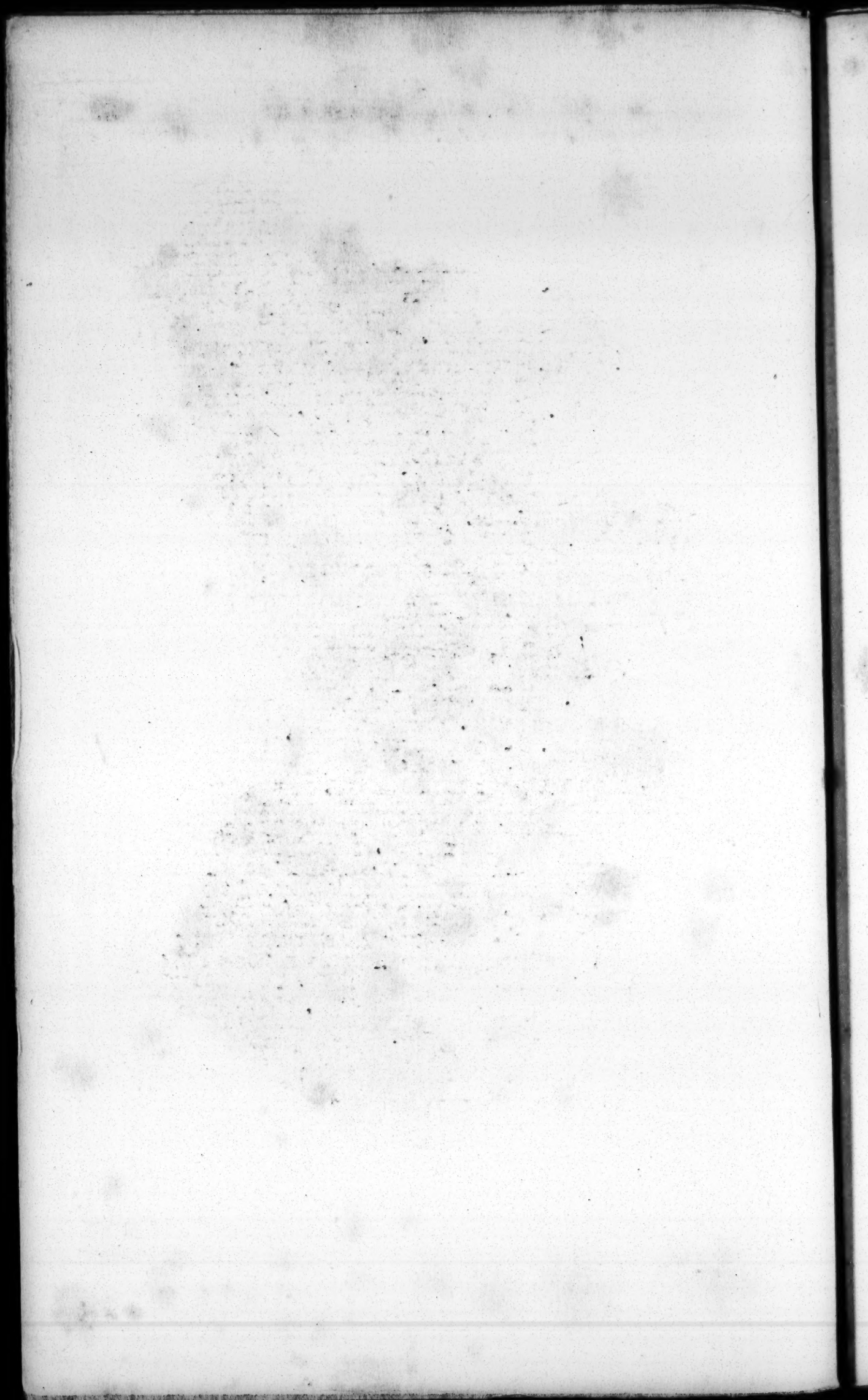
I should be sorry to be misunderstood on this point, or to have it thought that I meant to say, that every weak or ricketty child was necessarily liable to a curved spine; or that issues were to be deemed an infallible remedy for the ills arising from a strumous habit: far be it from me to say either: what I would wish to be understood to mean is, that such kind of habit appears to me to be most apt to produce some of the mischiefs mentioned in this tract: that as a purulent discharge, derived from the neighbourhood of the spine, is found, from repeated experience, to be a successful remedy, even after the disease is confirmed by a caries, it seems to me to bid fairer than any thing else, if used in time to become a preventive; and, that as some other kinds
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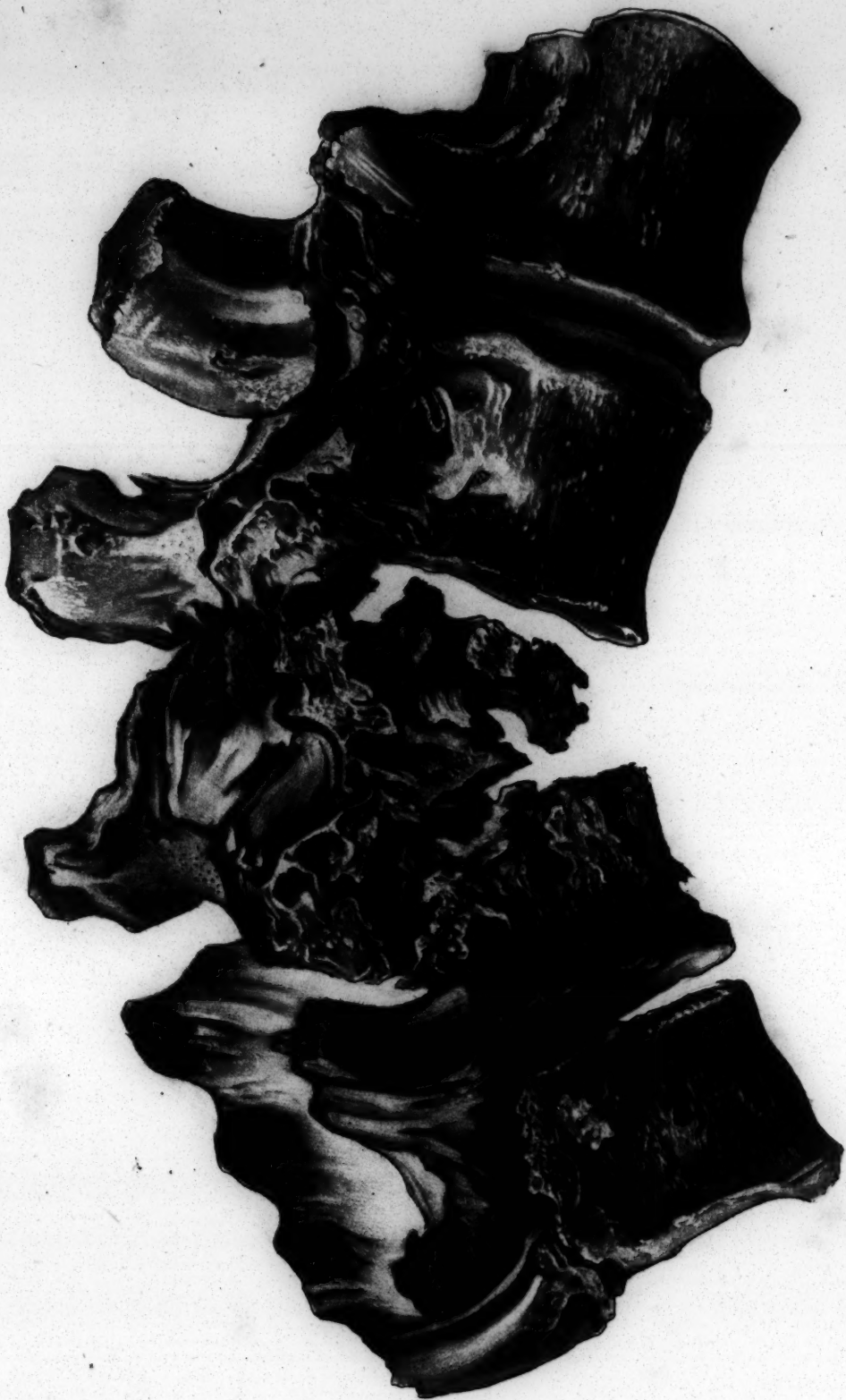
of deformity are found to follow attacks of the same kind of constitutional disorder seizing on these parts, and which, though not causing precisely the same effect, are nevertheless attended with the same general symptoms; I cannot help thinking, that it may be well worth while to try whether benefit be not obtainable by the same means, in the one case as in the other; and if the old maxim, "*anceps remedium quam nullum*" be admissible, surely an experiment, which is in its nature perfectly incapable of harm, is worth making.



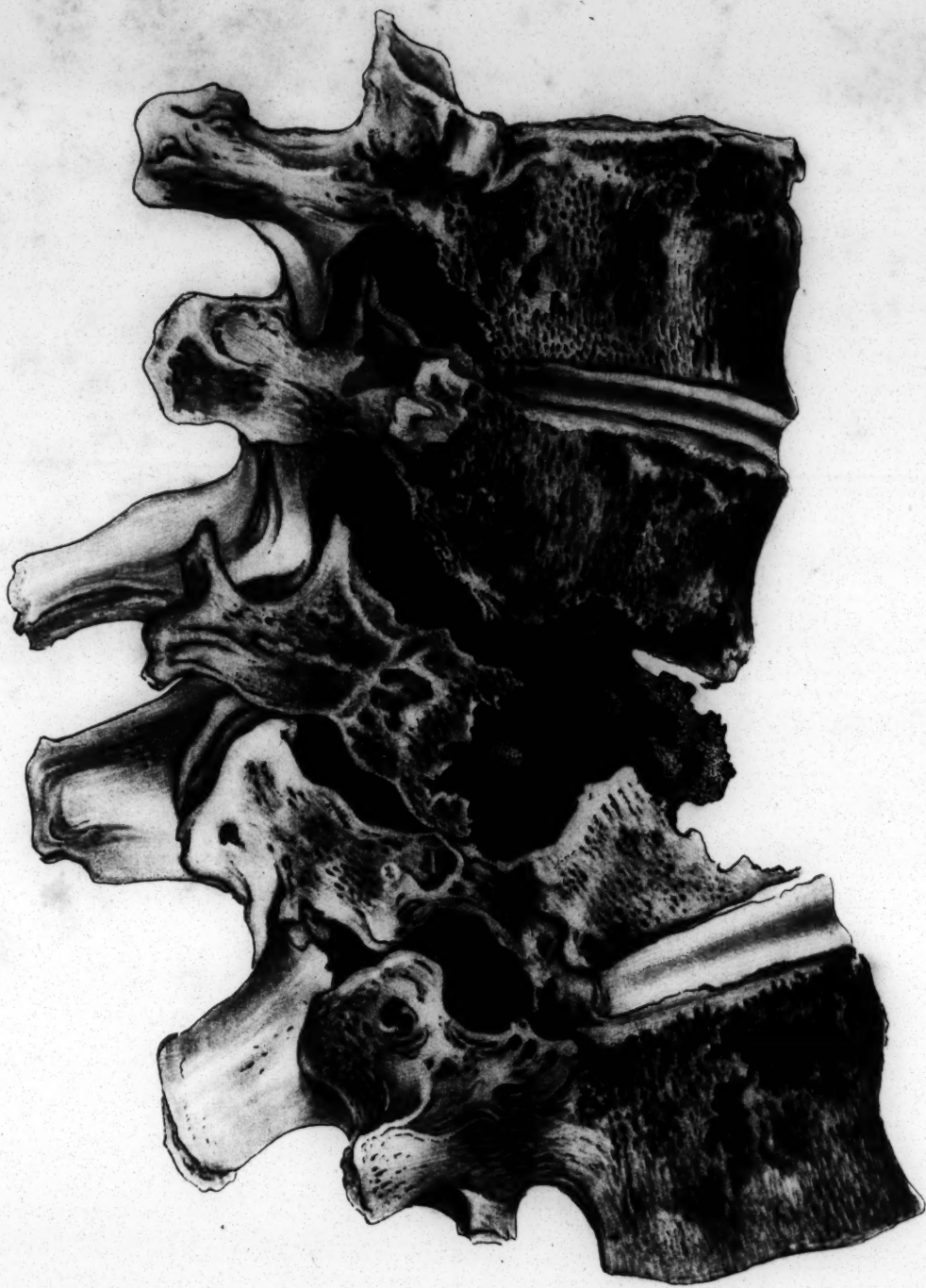
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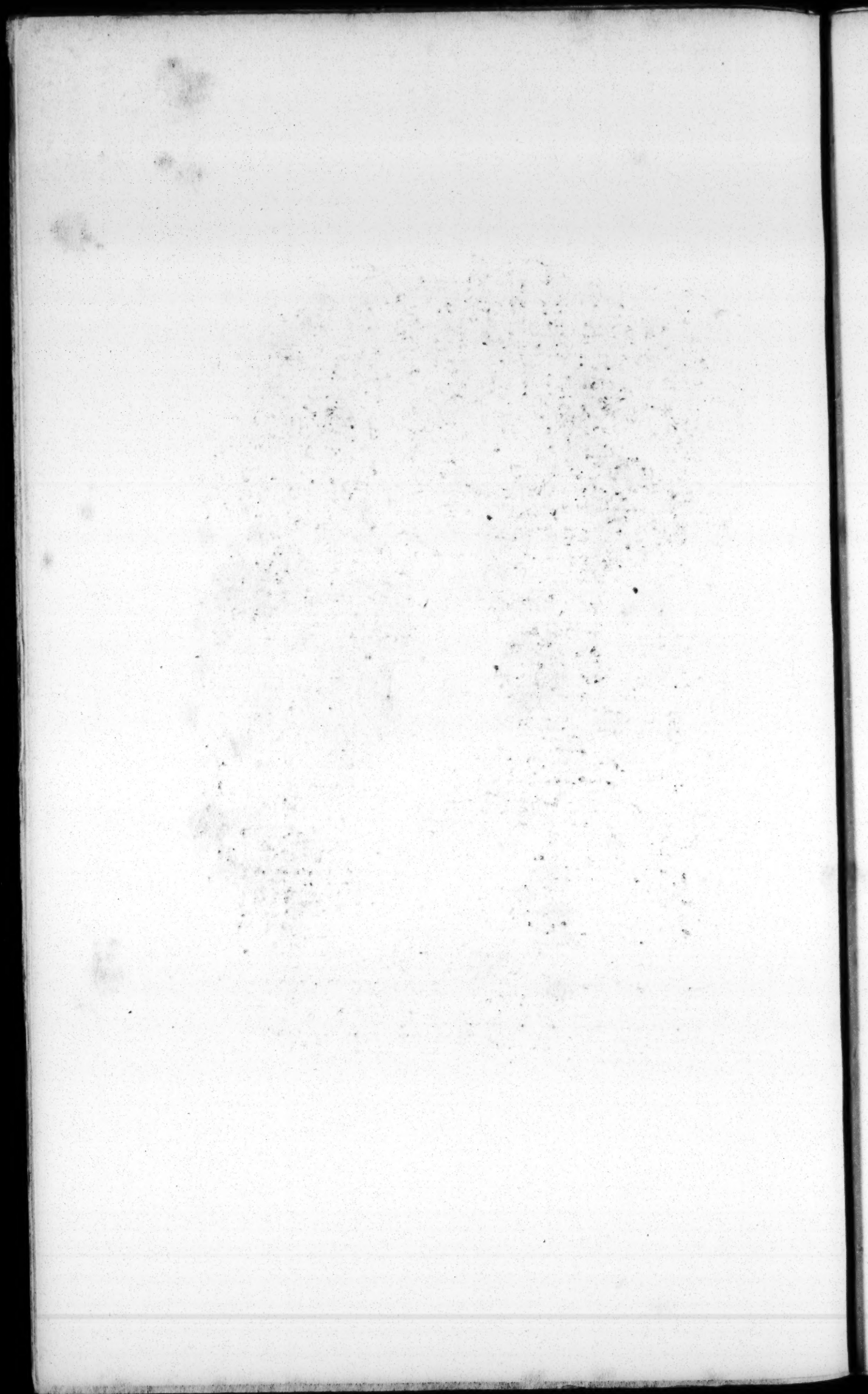


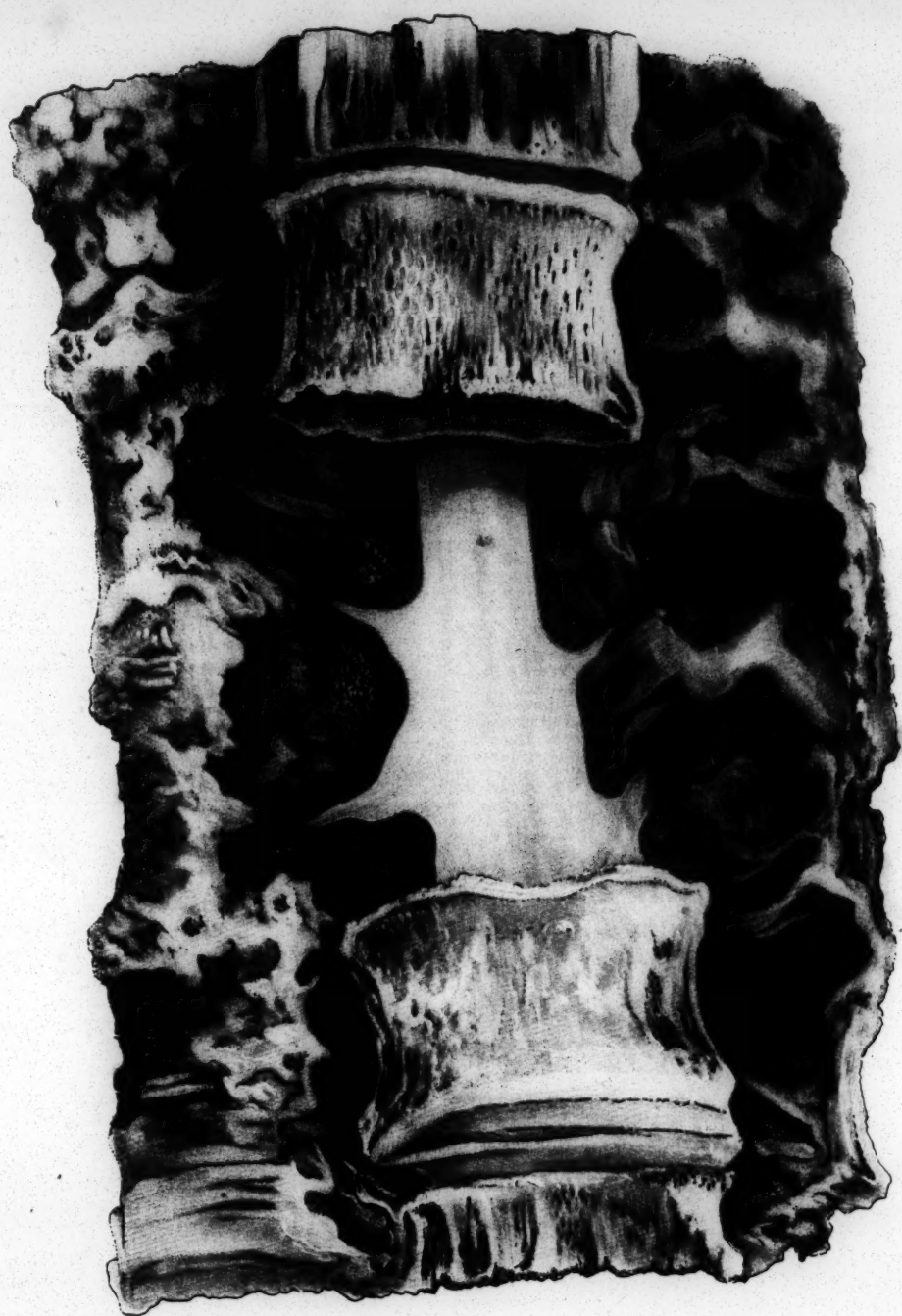


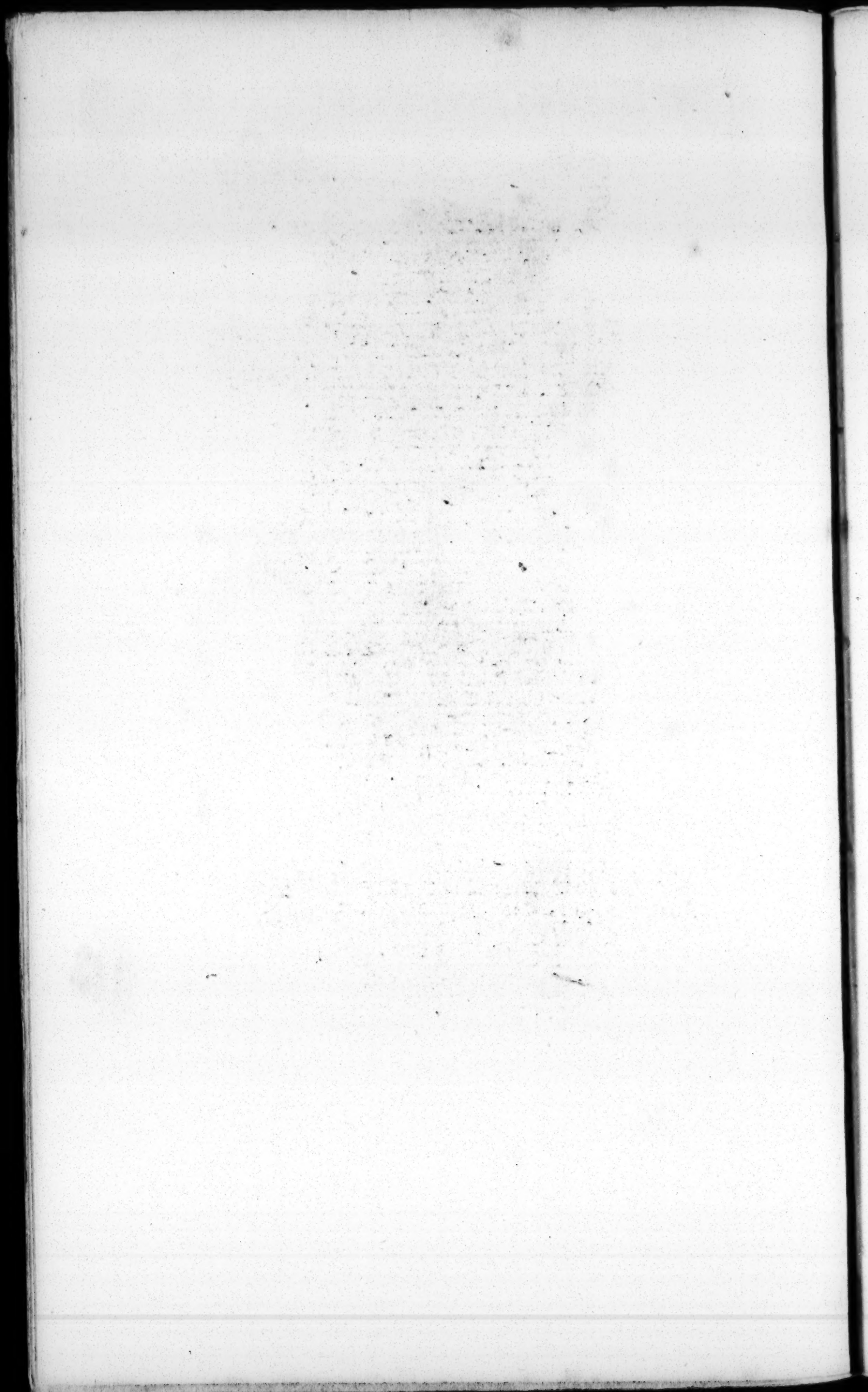














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